Atty Dkt. No.: GRUE-004

USSN: 10/532,067

I. AMENDMENTS

IN THE CLAIMS

Cancel claim 5 without prejudice to renewal.

Please enter the amendments to claims 1, 11-13, 16, and 17, as shown below.

Please enter new claims 18 and 19, as shown below.

- 1. (Currently amended) A recombinant Modified Vaccinia Vaccine Ankara (MVA) virus comprising at least one nucleic acid coding for a *Plasmodium falciparum* merozoite surface protein-1 (MSP-1) protein or a fragment or mutein thereof, wherein the fragment of MSP-1 is selected from the fragments p83, p30, p38, p33, p19, and p42, or a combination thereof, [[and]] wherein the mutein comprises an amino acid sequence that differs from the MSP-1 amino acid sequence by addition, deletion, insertion, inversion, and/or substitution of one or more amino acids, and wherein the nucleic acid coding for MSP-1 is reduced in its adenine and thymine (AT) content compared to the wild type sequence.
- 2. (Previously presented) The recombinant MVA virus according to Claim 1, wherein the MSP-1 protein is the MSP-1 protein of the isolate 3D7 or the MSP-1 protein of the FCB1 strain.

3.-5. (Cancelled)

- 6. (Previously presented) The recombinant MVA virus according to Claim 1, wherein the nucleic acid coding for MSP-1 is under the control of a promoter.
- 7. (Previously presented) The recombinant MVA virus according to Claim 1, wherein the nucleic acid at the 5' end is fused with a nucleotide sequence coding for a signal peptide sequence.
- 8. (Previously presented) The recombinant MVA virus according to Claim 7, wherein the signal peptide sequence controls the secretion of the gene product.
- 9. (Previously presented) The recombinant MVA virus according to Claim 7, wherein the signal peptide sequence controls the localisation of the gene product to the membrane.
- 10. (Previously presented) The recombinant MVA virus according to Claim 7, wherein the signal sequence controls the glycosylphosphatidylinositol anchoring of the gene product.

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11. (Currently amended) A method of production of a recombinant Modified Vaccinia Vaccine Ankara (MVA) <u>-based</u> virus, wherein the method comprises the steps:

- a) transfecting a eukaryotic host cell with a transfer vector, wherein
- i) the transfer vector comprises a nucleic acid encoding a *Plasmodium falciparum* merozoite surface protein-1 (MSP-1) protein, or a fragment or a mutein thereof, wherein the fragment of MSP-1 is selected from the fragments p83, p30, p38, p19, and p42, or a combination thereof, wherein the mutein differs by the addition, deletion, insertion, inversion and / or substitution of one or more amino acids from the MSP-1 sequence, and wherein the nucleic acid coding for MSP-1 is reduced in its adenine and thymine (AT) content compared to the wild type sequence; and optionally also comprises a selection marker;
- ii) the nucleic acid according to i) is flanked by MVA sequences 5' and / or 3', wherein the sequences are suitable for the homologous recombination in the host cell;
 - b) infection infecting the cell from step (a) with a virus based on MVA, preferably MVA;
- c) <u>cultivation of cultivating</u> the host cell under conditions suitable for homologous recombination; and
 - d) isolation of isolating the recombinant MVA-based virus based on MVA.
- 12. (Currently amended) The method according to Claim 11, wherein the <u>recombinant</u> virus is isolated from the culture supernatant or from the cultivated host cells.
 - 13. (Currently amended) A vaccine comprising:
 - a) the recombinant virus according to one of Claims 1, 2, and <u>6-9</u> [[5-9]]; and
 - b) a pharmacologically compatible carrier.
- 14. (Previously presented) The vaccine according to Claim 13, further comprising: c) MSP-1, a fragment or a mutein thereof and / or a nucleic acid coding for MSP-1, or a fragment or mutein thereof.
- 15. (Previously presented) The vaccine according to Claim 14, wherein the constituents a) and c) can be administered simultaneously, sequentially or separately.
- 16. (Currently amended) A method for the prophylaxis and / or therapy of malaria, the method comprising administering the recombinant virus of any one of Claims 1, 2, and <u>6-9</u> [[5-9]].
- 17. (Currently amended) A method for the prophylaxis and / or therapy of malaria, the method comprising administering: i) a recombinant virus according to one of claims 1, 2, and 6-8 [[5-8]]; and ii) MSP-1, a

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fragment or a mutein thereof and / or a nucleic acid coding for MSP-1, or a fragment or mutein thereof, wherein the fragment of MSP-1 is selected from the fragments p83, p30, p38, p33, p19, and p42, or a combination thereof, and wherein the mutein comprises an amino acid sequence that differs from the MSP-1 amino acid sequence by addition, deletion, insertion, inversion, and/or substitution of one or more amino acids.

- 18. (New) The method of claim 11, wherein the transfer vector comprises a selection marker.
- 19. (New) The method of claim 11, wherein the MVA-based virus is MVA.